



west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

March 10, 2011

WELL WORK PERMIT


Horizontal Well

This permit, API Well Number: 47-6101622, issued to NORTHEAST NATURAL ENERGY LLC, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, well operators report of well work, is to be submitted to this office within 90 days of completion of drilling, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.



James Martin
Chief

Operator's Well No: MIP 4H
Farm Name: ENROUT PROPERTIES, LLC
API Well Number: 47-6101622
Permit Type: Horizontal Well
Date Issued: 03/10/2011

Promoting a healthy environment.



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street, SE Charleston, WV 25304
(304)926-0499, Ext 1656

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
dep.wv.org

March 3, 2011

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-061-01622 H

COMPANY: Northeast Natural Energy, LLC

FARM: Enroute Properties, LLC MIP Unit #4H

COUNTY: Monongalia DISTRICT: Grant QUAD: Morgantown South

The application for the above company is **APPROVED FOR ORISKANY ONLY**. If operator wishes to drill deeper than the ORISKANY, additional approval must be obtained from the OGCC. -
Marcellus completion - Inspector must be notified prior to plug back.

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

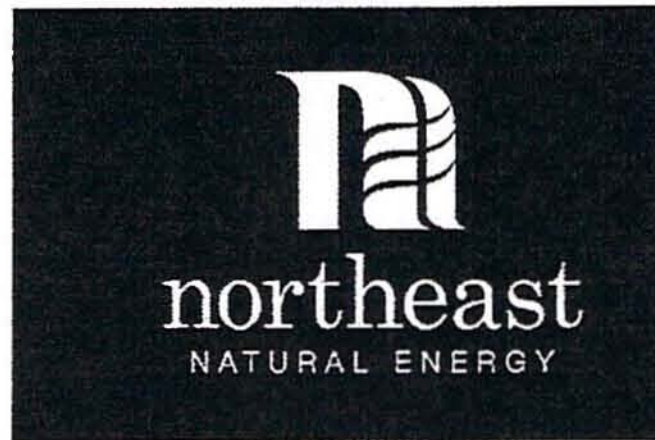
1. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners; N/A
2. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells, well name, and the name and address of the operator; none
3. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

Cindy Raines
Executive Assistant

To avoid enforcement action and per 39CSR1.4.6 and 4.10 filing of wells logs and directional surveys are due within 90/60 days of completion of a deep well.

Promoting a healthy environment.



MORGANTOWN INDUSTRIAL

PARK #4H/#6H

SITE SAFETY PLAN

February 18, 2011

Q.2. Barber
3/2/11

BASIC HSE AND DRILLING PARAMETERS

Post the following at location (**MUST** be in-hand prior to spud):

- WV DEP Well Permit
- Site Reclamation Plan ("Rec Plan") – posted in tube at entrance to location.
- WV DOT Driveway Permit if applicable
- Well site 911 Address

Project Goals & Objectives:

- **Safety First:** No Accidents - focus on observations & on fostering a proactive safety culture
- **Protect the Environment:** No Spills
- **Regulatory Compliance:** No Violations

No existing top hole wells on pad at present.

Well Site Supervisor daily checks:

- The safety, environmental, and regulatory compliance are the direct responsibility of the well site supervisor on site.
- Check rig and location housekeeping daily.
- Inspect all pits and ensure at least a 3' freeboard is maintained. Properly dispose of cuttings and fluids as necessary to maintain freeboard).
- Inspect and maintain the E&S controls every 12 hours. Record checks on morning report.

Notify the Oil & Gas Inspector at least 24 hours prior to commencing well work / spud (this includes the setting of conductor casing). Tristan Jenkins-304-552-3874

Build location and access road. Install silt fence, silt socks, road breakers, and culverts as per well pad design drawings. Excavate and line 4000 bbl cuttings pit (with 1/3 diked to segregate Marcellus cuttings). Minimum of 20 mil pit liner to be utilized. Fresh water impoundment (4 MM gallons) to be built and lined (FW impoundment may or may not be built concurrently).

MIRU Track hoe with hammer to set **20" LS conductor casing @ 36-40'** below ground level into competent bedrock. Ensure conductor casing is plumb with level checks before grouting in place.

Install metal cellars 6' diameter x 6' deep. Grout if necessary

Install pit liner material underneath any part of rig or its components that could cause a potential spill of fluids of any type on the ground. The edges of the pit liner must be bermed so as to contain such an event.

Tophole Rig (Ideco H-37 or equivalent). Rig to have a minimum of 3000 scfm air capacity. **Perform pre-spud rig safety inspection.** Set and pull test anchors and guide lines. Review latest inspection records of DP, DC's, and subs/xo's. Drill rathole/mousehole.

Inspector must attend
pre-spud meeting (per D. Belcher)
3/3/11
*

61-01622H

WW - 2B
(Rev. 8/10)

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator Northeast Natural Energy, LLC Operator ID County Monongalia District Grant Quadrangle Morgantown So.

2) Operator's Well Number: MIP 4H 3) Elevation: 1,130'

4) Well Type: (a) Oil or Gas X

(b) If Gas: Production X / Underground Storage

Deep X / Shallow

5) Proposed Target Formation(s): Marcellus Shale Proposed Target Depth: 7550'

6) Proposed Total Depth: 8000' TVD Feet Formation at Proposed Total Depth: Oriskany

7) Approximate fresh water strata depths: 300' ✓

8) Approximate salt water depths: 750'

9) Approximate coal seam depths: 200' - 250' ✓

10) Approximate void depths, (coal, Karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work in detail Drill and complete a horizontal Marcellus well. Drill vertical section to approximately three hundred feet below the base of the Marcellus for logging purposes, plug back the vertical section with cement to the kick off point and drill the horizontal section to a measured depth of 11,456 feet. ✓

13) **CASING AND TUBING PROGRAM**

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	20"	J-55	94 #	36'	36'	Grout to surf.
Fresh Water	13.375"	J-55	54.5 #	450'	450'	CTS ✓
Coal						
Intermediate	9.625"	J-55	36#	1550'	1550'	CTS
Production	5.5"	P-110	20#	11,456'	11,456'	3138 cu. ft.
Tubing						
Liners						

Packers: Kind
 Sizes
 Depths Set

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FEB 09 2011

Revised

WV Department of
 Environmental Protection

61-01622

West Virginia
Office of Oil & Gas

FFR 11 2011

WV Department of
Environmental ProtectionWW - 2B
(Rev. 8/10)STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
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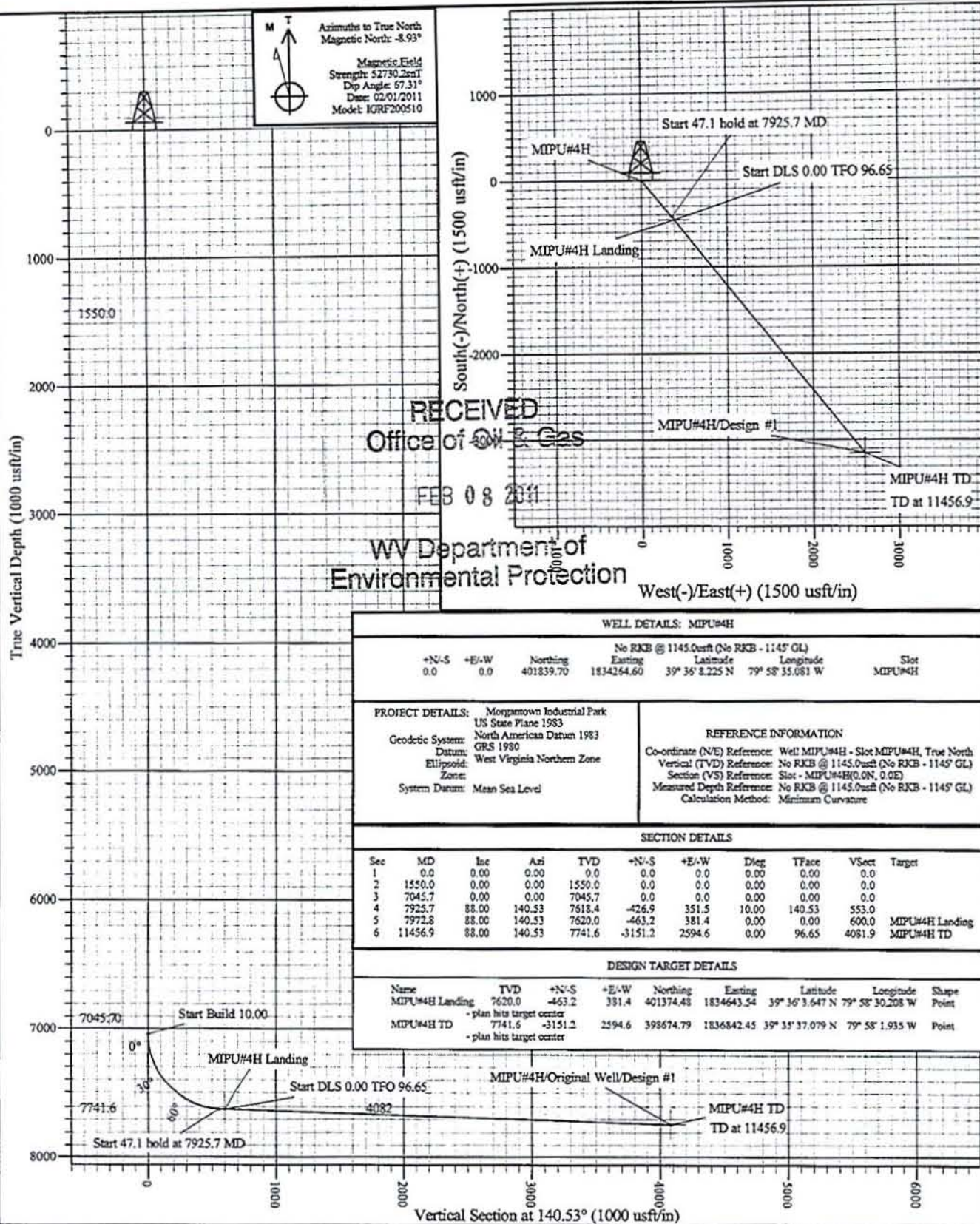
Packers: Kind
Sizes
Depths Set7/16
3/8" thickness
TAC
9 Feb 11
5/16

61-01622H



Scientific Drilling

Project: Morgantown Industrial Park
 Site: Morgantown Industrial Park Unit
 Well: MIPU#4H
 Wellbore: Original Well
 Design: Design #1



WW-2A1
(Rev. 8/02)

Operator's Well Number MIP #4H

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6, Section 8(d)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

<u>Grantor, lessor, etc.</u>	<u>Grantee, lessee, etc.</u>	<u>Royalty</u>	<u>Book/Page</u>
Enrout Properties, LLC	Northeast Natural Energy, LLC	18.5%	1420/577

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FEB 08 2011
WV Department of
Environmental Protection

Well Operator: Northeast Natural Energy, LLC
By: Brett Loflin
Its: Vice President, Regulatory Affairs

State of West Virginia
Department of Environmental Protection
Office of Oil and Gas

Well Work Permit Application Addendum

(To be completed when fluid volumes used or disposed may be greater than 5000 barrels)

- 1) Well Operator Northeast Natural Energy LLC
- 2) Operator ID # 494498281
- 3) Operator's Well Number MIP #6H
- 4) County Monongalia
- 5) Approximate Amount of Water to be Used (bbls.) 119,050
- 6) Fracture/Drilling Water Source (estimate % of each source to be used)
20% Surface Water Groundwater 80% Purchased Water Reused Water
- 7) Location of Surface Water Source (if applicable)
 - a) County Monongalia
Water Source Name Monongahela
Latitude (d/m/s) 39 deg 36 min 12.024 sec Longitude (d/m/s) -79 deg 57 min 47.484 sec
NAD83 x or NAD27
 - b) Anticipated month(s) of water withdrawals May - June
- 8) Location of Groundwater Source (if applicable)
 - a) County
Water Source Name/ID
Latitude (d/m/s) Longitude (d/m/s)
NAD83 or NAD27
 - b) Anticipated month(s) of water withdrawals
- 9) Location of Purchased Water Source (if applicable)
Public/Private Water System Name Morgantown Utility Board
- 10) Location of Reused Water (if applicable)
County
Well/Facility ID

11) Will Centralized Pits/Ponds Be Utilized ____yes ☒ no

Location (if applicable)

Latitude (d/m/s) _____ Longitude (d/m/s) _____

Dimensions in Feet (if applicable)

Length _____ Width _____ Depth _____

NAD83 _____ or NAD27 _____

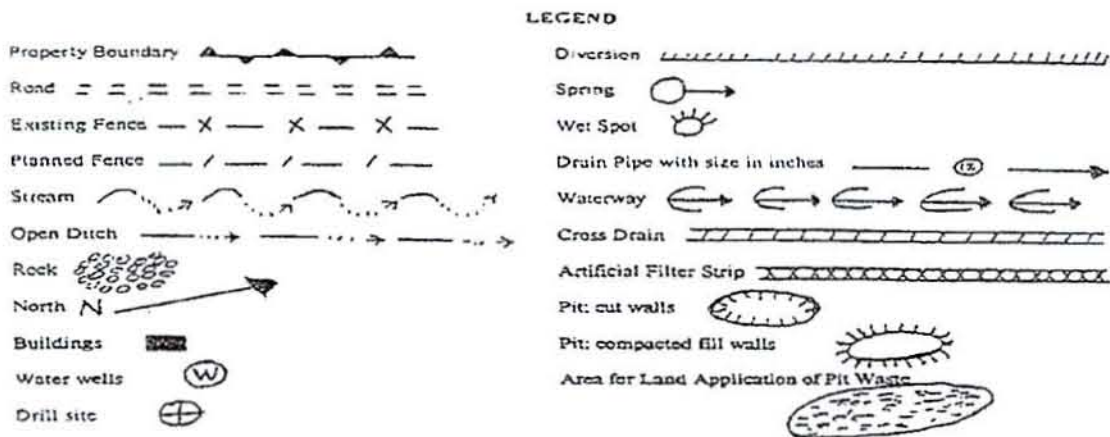
12) Water Disposal Method (estimate % each facility is to receive)

____ Land Application ☒ UIC—provide UIC permit number UIC2D085515 (75%)

____ POTW—provide facility name _____

____ NPDES—provide permit number _____

☒ Other Advanced Waste Services (New Castle, PA) (25%)

Operator's Well No. MIP #4HProposed Revegetation Treatment: Acres Disturbed 24.4 Prevegetation pH 6.0Lime 2.0 Tons/acre or to correct to pH 6.5Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)Mulch Hay/Straw Tons/acre

Seed Mixtures

Seed Type	Area I	lbs/acre
Kentucky Bluegrass		20
Red Top		15
White Clover		15

Seed Type	Area II	lbs/acre
Kentucky Bluegrass		20
Red Top		15
White Clover		15

Attach:

Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

Comments:

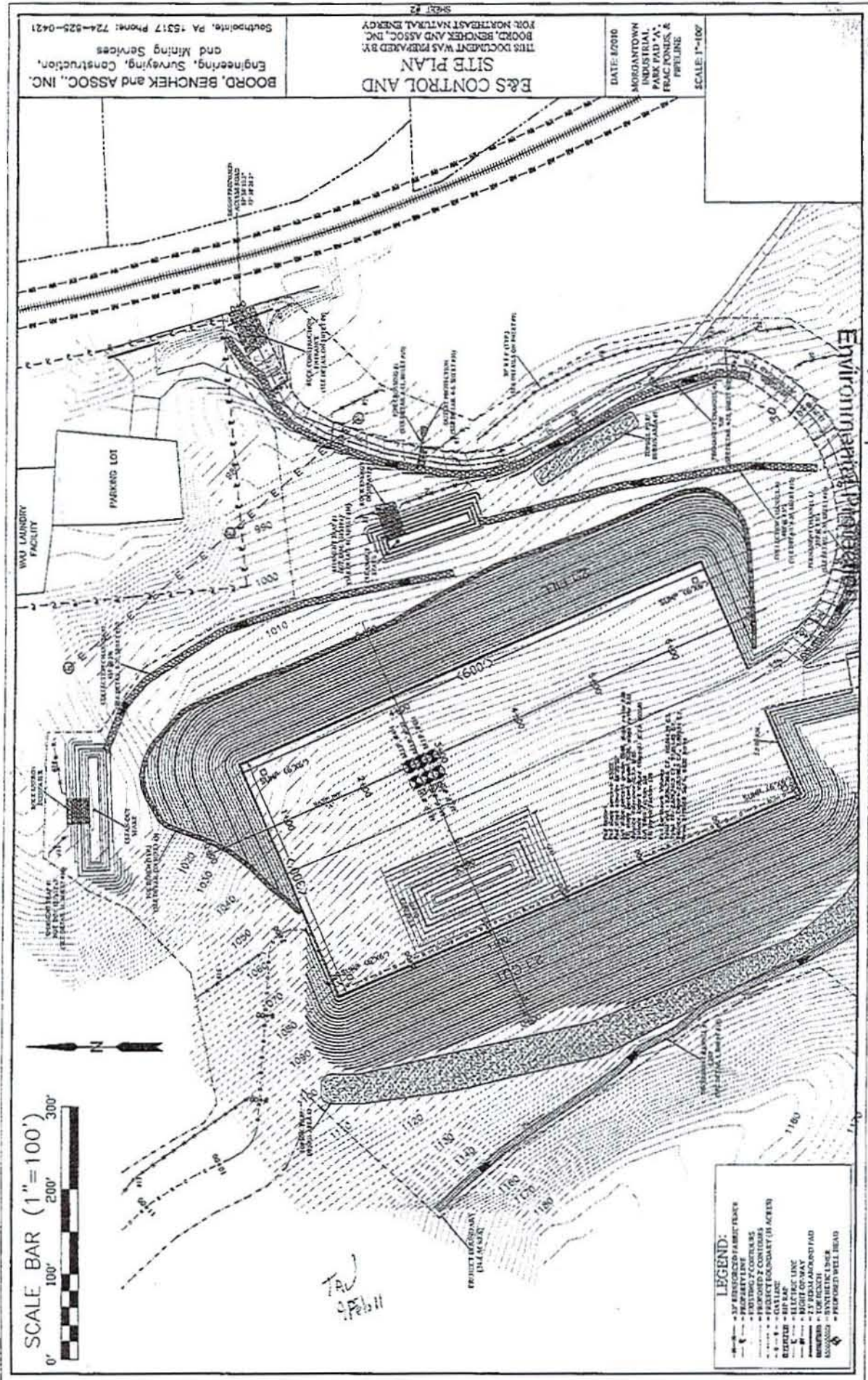
Title: Oil/Gas InspectorDate: 9 Feb 11

Field Reviewed?

☒ Yes☐ No

REC'D
Office of Oil & Gas
FFR 1 1 2011
WV Department of
Environmental Protection

Environmental Protection



Attachment A to WW-9

Initial plans are to drill two horizontal wells Marcellus Shale wells on the same pad; the Morgantown Industrial Park #4H (MIP#4H) and the Morgantown Industrial Park #6H (MIP #6H). If successful, four more horizontal Marcellus wells will be drilled from the existing pad. The cuttings from the MIP #4H will be treated and solidified for removal and transport to the landfill listed on the WW-9. The drill cuttings from the MIP #6H may be treated and solidified with Portland cement, covered with synthetic liner and buried or treated and solidified for removal and transport to the landfill. Some flow-back fluids from the completion operations on the MIP #4H may be treated and re-used in the MIP# 6H. Drilling fluids will be recycled/reused in the drilling of subsequent wells. Any fluids in the drill pit (drilling fluids and formation water) will be either treated and land applied as per regulations or transferred to the flow back pit/tanks for reuse or disposal.

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Office of Oil & Gas

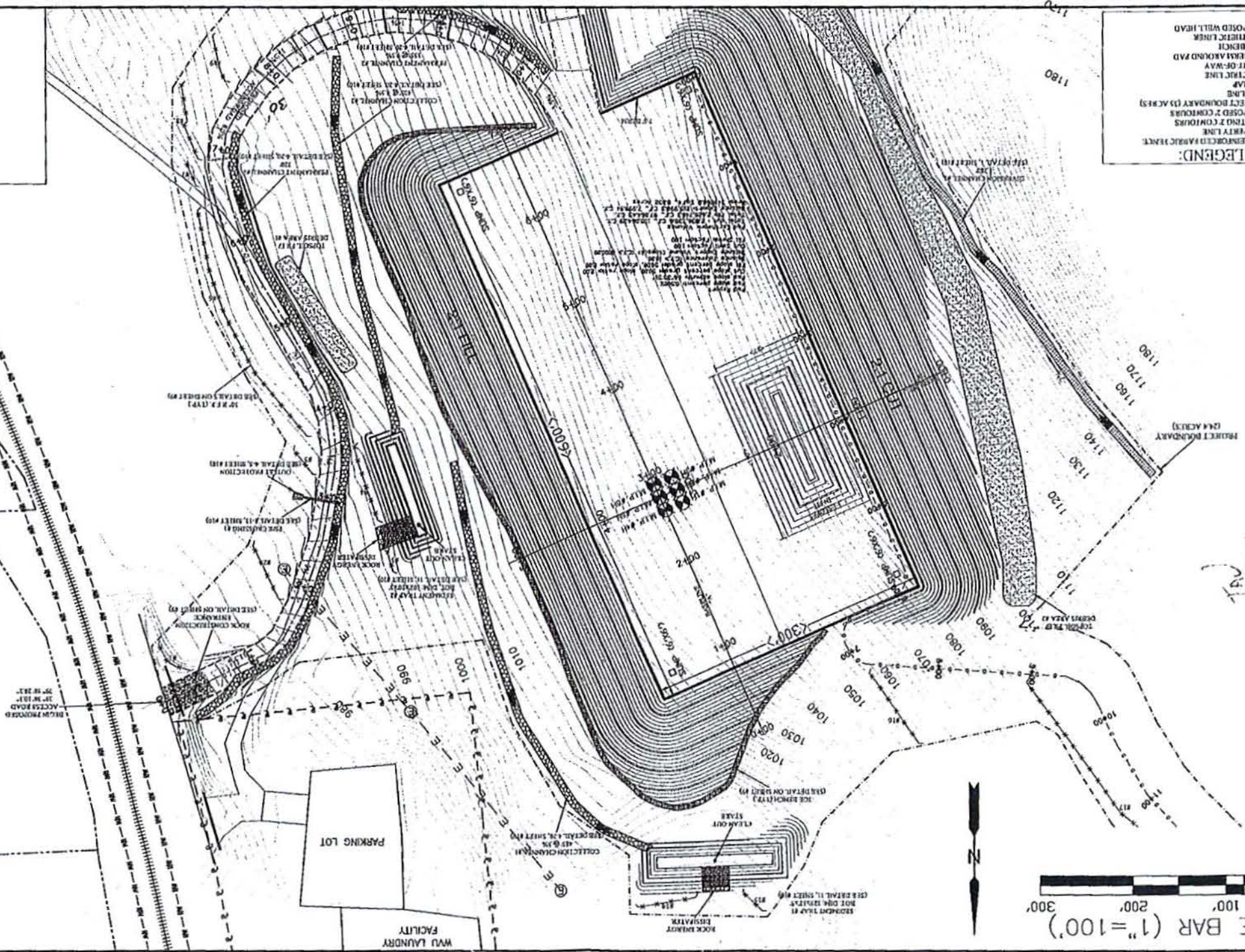
FEB 08 2011

WV Department of
Environmental Protection

- LEGEND:**
- PROPOSED WILL HEAD
 - SYMBOLIC LINE
 - 2.5' BENCH MARK
 - 2.5' BENCH MARK PAD
 - RIGHT-OF-WAY
 - ELECTRIC LINE
 - GAS LINE
 - RIP RAP
 - PROJECT BOUNDARY (15 ACRES)
 - PROPOSED 2' CONTOURS
 - EXISTING 2' CONTOURS
 - PROPERTY LINE
 - TOP SURVEYED FABRIC BENCH

SCALE BAR (1"=100')

0' 100' 200' 300'



SCALE: 1"=100'

DATE: 8/2010

MORGANTOWN INDUSTRIAL PARK PAD "A"

PIPELINE

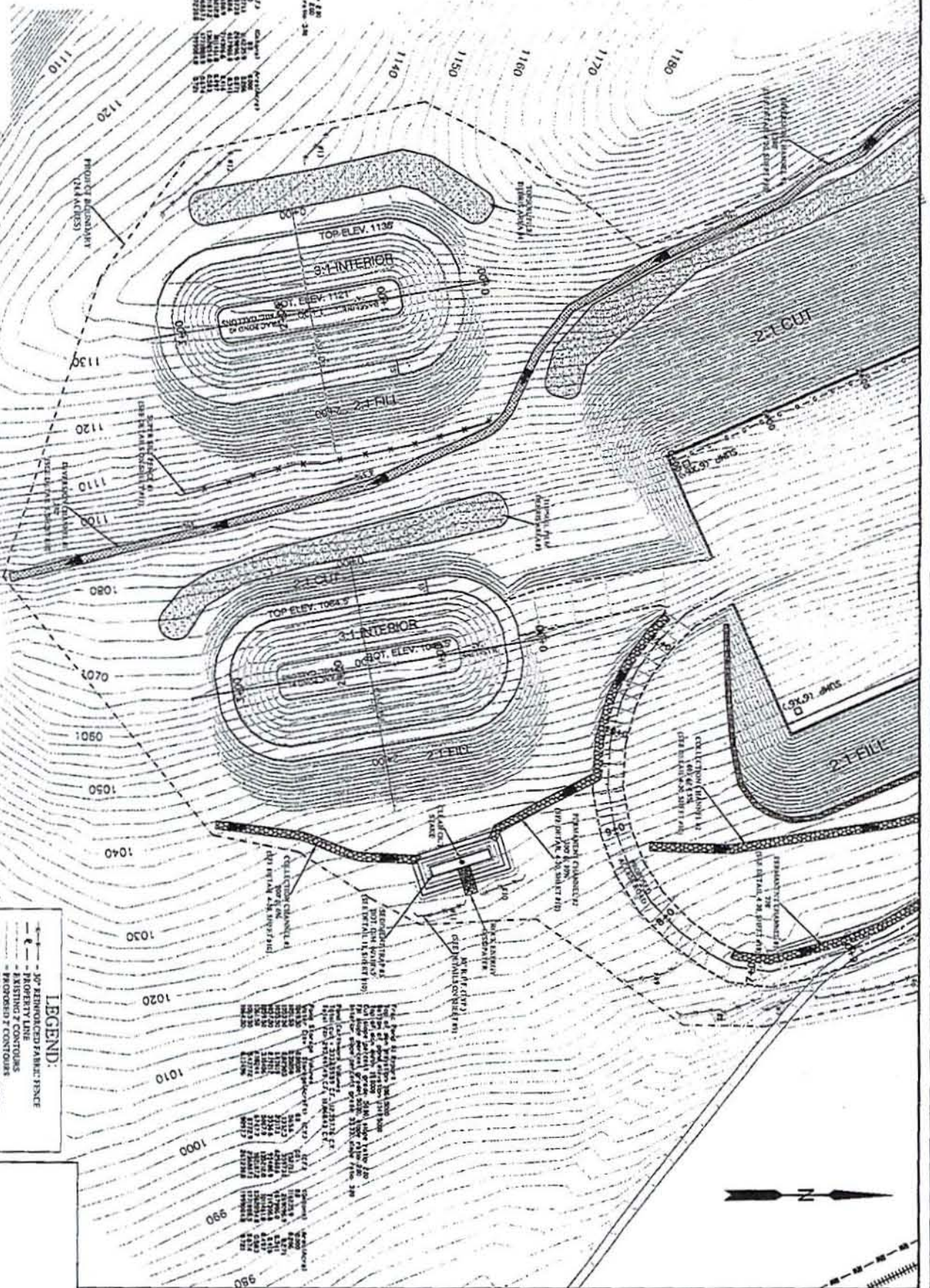
E&S CONTROL AND SITE PLAN

THIS DOCUMENT WAS PREPARED BY:
BOORD, BENCHEK AND ASSOC., INC.
FOR: NORTHEAST NATURAL ENERGY

BOORD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
and Mining Services
Southpointe, PA 15317 Phone: 724-825-0421

SHEET 22

61-01622H



LEGEND:

- E — 30' REMODELED PANEL RESINCE
- F — PROPERTY LINE
- G — EXISTING 2' CONTIGUOUS
- H — PROPOSED 2' CONTIGUOUS
- I — PROJECT BOUNDARY (3) ACRES
- J — GAS LINE
- K — RIP RAP
- L — E — ELECTRIC LINE
- M — RIGHT-OF-WAY
- N — 2.5' BEEM AROUND PAD
- O — TOI BENCH
- P — SYNTHETIC LINER
- Q — PROPOSED WELL HEAD

DATE: 8/2010
MORGANTOWN
INDUSTRIAL
PARK PAD "A",
FRAC POND, &
PIPELINE
SCALE: 1"=100'

E&S CONTROL AND SITE PLAN

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Southpointe, PA 15317 Phone: 724-825-0421

SHEET 73

[illegible]

THIS DOCUMENT WAS PREPARED BY:
BOORD, BENCHEK AND ASSOC., INC.
FOR: NORTHEAST NATURAL ENERGY

BOORD, BENCHEK and ASSOC., INC.
Engineering, Surveying, Construction,
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Southpointe, PA 15317 Phone: 724-825-0421

DATE: 8/2010
MORGANTOWN
INDUSTRIAL
PARK PAD "A",
FRAC PONDS, &
PIPELINE
SCALE: 1"=100'

SHEET 44

EMERGENCY CONTACTS**1) FIRE DEPARTMENTS**

- MORGANTOWN WV 304-983-2000
- WESTOVER WV 304-296-0840

2) AMBULANCE /EMS

- MON EMS 304-599-0650
- JAN-CARE AMBULANCE SERVICE 304-296-9700

3) LIFE FIGHT AMBULANCE SERVICE (HELICOPTER)

- ANGEL MEDFLIGHT 866-604-8307

4) HOSPITAL

- RUBY MEMORIAL HOSPITAL 304-598-4000

5) STATE POLICE

- MORGANTOWN DETACHMENT 304-2853200

6) MONONGALIA COUNTY POLICE

- MONONGALIA COUNTY SHERIFFS OFFICE 304-291-7290

7) WV DEP/OFFICE OF OIL AND GAS CONTACTS

- TRISTAN JENKINS-INSPECTOR 304-552-3874
- JAMES MARTIN-CHIEF 304-926-0499 EXT 1654
- DAVE BELCHER-INSPECTOR SUPERVISOR 304-926-0499
- DAVE BELCHER-CELL PHONE 304-389-7590

8) NORTHEAST NATURAL ENERGY LLC CONTACTS

- JOHN ADAMS-VP OF OPERATIONS 304-414-7077
- BRETT LOFLIN-VP OF REGULATORY AFFAIRS 304-414-7073
- DAVE McDOUGAL-MANAGER CIVIL ENGINEERING 304-941-5033
- KEVIN STILES-DRILLING CONSULTANT 304-216-1083

9) DRILLING CONTRACTORS

- TRINITY FRY-LES WILSON DRILLING 618-3846383
- TOM FLYNN-YOST DRILLING 724-998-0224

10) KEY CONTRACTORS AND VENDORS

- BJ SERVICES-CEMENT/PUMPING SERVICES 304-624-9802
- HALLIBURTON-CEMENT/PUMPING SERVICES 888-223-4255

11) BUSINESS AND RESIDENCE IN AREA OF REVIEW (One mile radius of proposed well location)

American Environmental Service - (304) 292-0659
2100 Georgetown Drive, Sewickley, PA 15143

Azimuth, Inc. - (304) 292-3731
3741 Morgantown Industrial Park, Morgantown, WV 26501

Blackhawk Interiors - Joe Whipkey - (304) 292-4011
3500 Morgantown Industrial Park, Morgantown, WV 26501

Chemtura Corporation - Lynn Unger - (304) 296-2554
1000 Morgantown Industrial Park, Morgantown, WV 26501

Dominion Resource - Todd Sackett - (304) 288-2702
2800 Morgantown Industrial Park, Morgantown, WV 26501
Easley and Rivers - Kathy Bryce - (304) 291-6803
3800 Morgantown Industrial Park, Morgantown, WV 26501

Global Land - Lenard Satterfield - (845) 359-0444
Radio Tower

Blue and Gold News - (304) 291-2242

3715 Morgantown Industrial Park, Morgantown, WV 26501

Javins Corporation – Debra Javins – (304) 292-3234
2000 Morgantown Industrial Park, Morgantown, WV 26501

John Summers – (304) 216-1155
4400 Morgantown Industrial Park, Morgantown, WV 26501

Make-A-Wish Foundation – Bobbi Spear – (304) 292-5600
3711 Morgantown Industrial Park, Morgantown, WV 26501

PS Management – Brian Shaffer – (304) 685-4953
P.O. Box 839, Morgantown, WV 26501

M.T.S. Company – Mike Blosser – (304) 284-8777
2201 Morgantown Industrial Park, Morgantown, WV 26501

WVU Storage – Jim Harvey – (304) 293-6851
1000 Dupont Road, Morgantown, WV 26501

Sears – Brian Edmiston – (304) 276-5848
2208 Morgantown Industrial Park, Morgantown, WV 26501

CSC Pete Scott – Pete Scott – (304) 292-1340
31 Jo Glen Drive, Morgantown, WV 26508

WV United Linen Service – Art McDonald – (304) 216-7644
2100 Rail Street Morgantown Industrial Park, Morgantown, WV 26501

Central Supply – George Finley – (304) 292-5577
3100 Morgantown Industrial Park, Morgantown, WV 26501

Staley Communications – Challen Matthews – (304) 284-0110
1902 Morgantown Industrial Park, Morgantown, WV, 26501

Flint Industries – Mike Lovell – (304) 292-0041
451 North Metro Drive, Morgantown, WV 26501

Leam Industries – Carl Benwal – (713) 206-0249
200 Metro Drive, Morgantown, WV 26501

Greenscape, Inc. – Doug Stork – (301) 616-8120

Westwood Middle School – Lynn Haney – (304) 291-9300
680 River Road, Morgantown, WV, 26501

Sky View Elementary School – (304) 284-2890
668 River Road, Morgantown, WV 26501

IBA Molecular – Jesse Deavers – (304) 292-2240
3601 Morgantown Industrial Park, Morgantown, WV 26501

BST Trucking (Riverfront) – Rob – (304) 292-445

Rainbow International – Darrell Phillips – (304) 291-6445
2202 Morgantown Industrial Park, Morgantown, WV 26501

Roto Rooter – Brian Stout – (304) 296-7686
2203 Morgantown Industrial Park, Morgantown, WV 26501

Core Building Solutions – Chad Matheny - (304) 376-1940
2200 Morgantown Industrial Park, Morgantown, WV 26501

WELL CONTROL EQUIPMENT

YOST DRILLING-TOPHOLE CONTRACTOR

- BOP-REGAN ANNULAR TYPE 11" 3000#

LES WILSON DRILLING-HORIZONTAL CONTRACTOR

- ANNULAR BOP-SHAFFER 11" 5M
- DOUBLE RAM BOP-SHAFFER 11" 5M
- CHOKE MANIFOLD-4 1/16" 5M

CASING PLAN

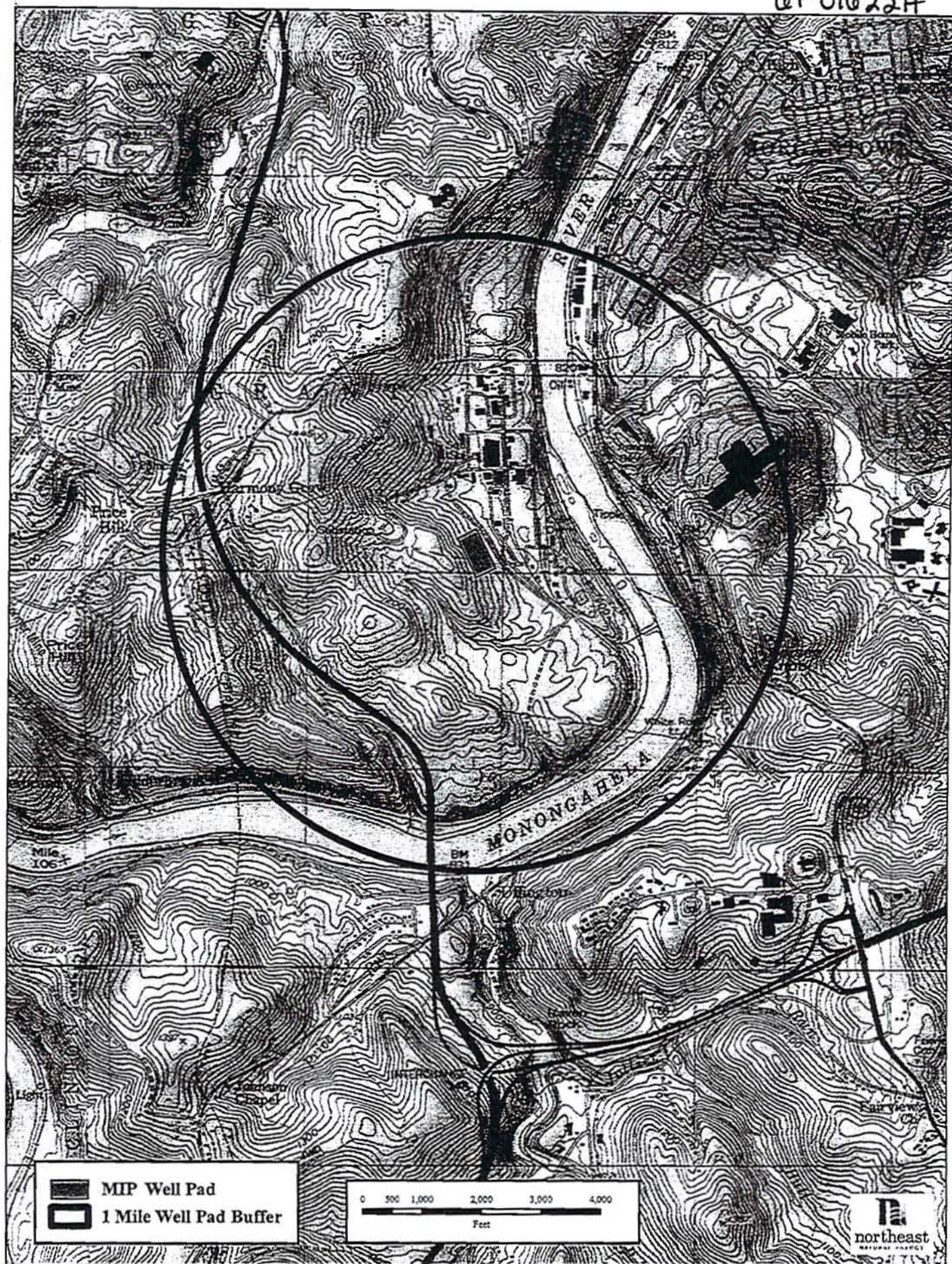
MORGANTOWN INDUSTRIAL PARK				
WELL:	#4H			
COUNTY:	MONONGALIA	STATE:	WV	
CASING SIZE	SETTING DEPTH	CASING CAPACITY CF/LIN FT	ANNULAR SIZE	
			HOLE	CASING
20"	36	1.9947	0	
13-3/8"	450'	0.8679	17.5	20"
9-5/8"	1550'	0.4257	12.25	13-3/8"
5-1/2"	11,456'	0.1245	8.75	9-5/8"

FEB 15 2011

Rig Release Date:

ਅਲੋਗ-17

61-01622H



Path: S:\Geographic Information System - GIS\Projects\Morgantown IndustPark_Mail\Brett Lofin\1 mile Buffer.mxd

NORTHEAST NATURAL ENERGY-WELL CONTROL EQUIPMENT-MIP PAD

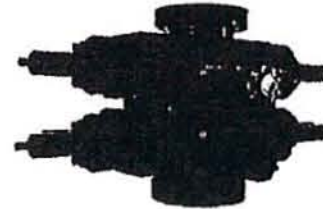
11" 5000 PSI SHAFFER ANNULAR



Annular BOP Sizes and Models

Working Pressure (psi)	Bore (inches)							
	7-1/16	9	11	13-5/8	16-3/4	18-3/4	20-3/4	21-1/4
10,000								
5,000								
3,000								
2,000								

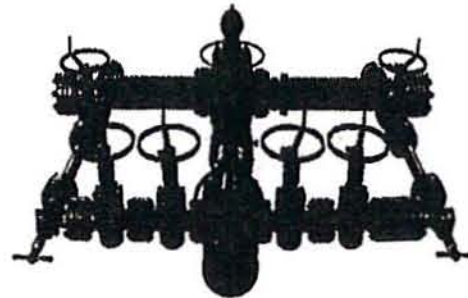
11" 5000 PSI SHAFFER DOUBLE RAM BOP



Ram BOP Sizes and Models

Working Pressure, psi	Bore Size (inches)								
	7-1/16	9	11	13-5/8	16-3/4	18-3/4	20-3/4	21-1/4	26-3/4
15,000									
10,000									
5,000									
3,000									
2,000									

3 1/8" 5000 PSI CHOKE MANIFOLD



Model	Working Pressure	Inlet	Outlet	Valve Control
CM3	3,000 psi	3-1/8" - 3,000 psi	3-1/8" - 3,000 psi	Manual and Hydraulic
CM5	5,000 psi	3-1/8" - 5,000 psi	3-1/8" - 3,000 psi	Manual and Hydraulic
CM10	10,000 psi	3-1/16" - 10,000 psi	3-1/8" - 5,000 psi	Manual and Hydraulic
CM15	15,000 psi	3-1/16" - 15,000 psi	3-1/16" - 10,000 psi	Manual and Hydraulic

Casing Specifications

Casing	Collapse (psi)	Burst (psi)	Body Yield (kips)	Joint Strength (kips)
20" x 3/8" Wall	N/A	N/A	N/A	N/A
13-3/8" 54.50# J-55 STC	1130	2730	853	514
9-5/8" 36.0# J-55 LTC	2020	3520	564	453
5-1/2" 20.0# P-110 CDC	11,100	12,360	641	667

Casing	Nominal ID	Drift ID	Conn OD	MU Torque (ft-lbs) Min - Opt - Max
20" x 3/8" Wall	19.250"	19.062"	N/A	N/A
13-3/8" 54.5# J-55 STC	12.615"	12.459"	14.375"	5140
9-5/8" 36.0# J-55 LTC	8.921"	8.765"	10.625"	3400 - 4530 - 5660
5-1/2" 20.0# P-110 CDC	4.778"	4.653"	6.050"	5000 - - 7500

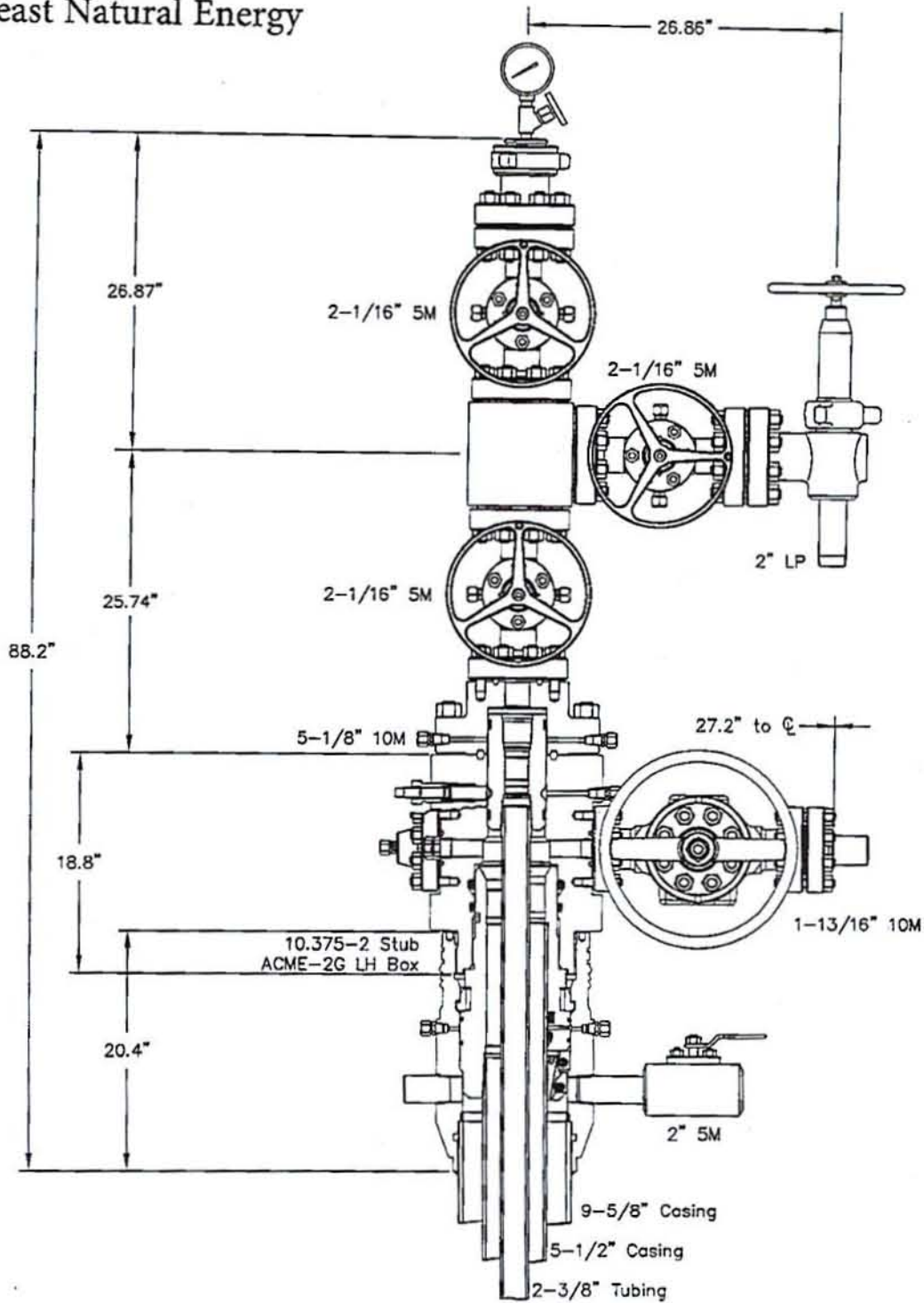
Drill Pipe Specifications

5" 19.5# G-105 4-1/2" IF is recommended (used pipe, premium class)

- Tensile Capacity = 436,150 lbs
- Torsional Capacity = 45,199 ft-lbs
- Collapse = 8765 psi
- Burst = 12,163 psi
- Adjusted weight per foot = 21.92#
- New Tube Nominal ID = 4.276"
- New TJ OD = 6-5/8"
- New TJ ID = 3-1/4"
- New TJ Drift = 3-1/8"
- New TJ MU Torque = 31,025 ft-lbs
- Min OD TJ = 6-3/32"
- Min OD TJ MU Torque = 21,914 ft-lbs
- Interchangeable Connections: NC50, 5" XH, 5-1/2" DSL

61-01622H

Northeast Natural Energy



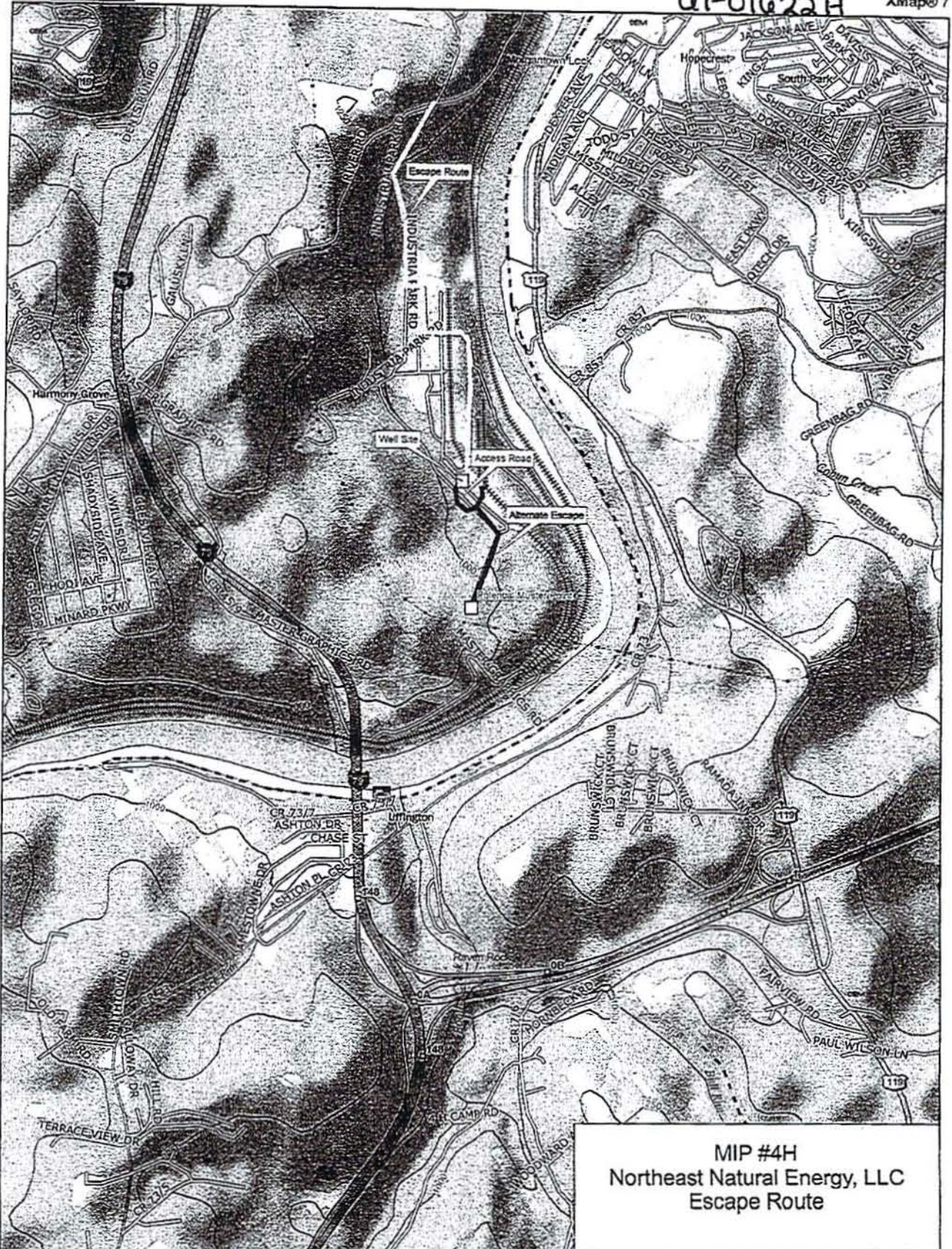
This drawing is the property of Wood Group Pressure Control and is considered confidential. Unless otherwise approved in writing, neither it nor its contents may be used, copied, transmitted or reproduced except for the sole purpose of Wood Group Pressure Control.

PROPOSED

WOOD GROUP PRESSURE CONTROL

9-5/8" X 5-1/2" X 2-3/8" 10/5M S95 Wellhead Assembly, With MTH-2-S95 Tubing Head, MTH Tubing Hanger and MTH Adapter Flange

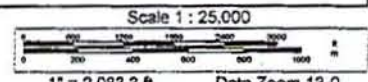
DRAWN	VJK	18MAY09
APPRV	THH	18MAY09
DRAWING NO.	AE16964	



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www.delorme.com



1" = 2,083.3 ft Data Zoom 13-0

Well Flaring Operations

The wells will be drilled with drilling mud in an overbalanced manner. No flaring while drilling is anticipated. Post frac, a flowback system consisting of 2" 1502 piping, a 5000 psi choke manifold, separators/fluid handling equipment, and a 30' flare tower will be deployed and utilized. The flare stack will have an electronic ignition system and will be deployed approximately 150' downwind of the wellhead.

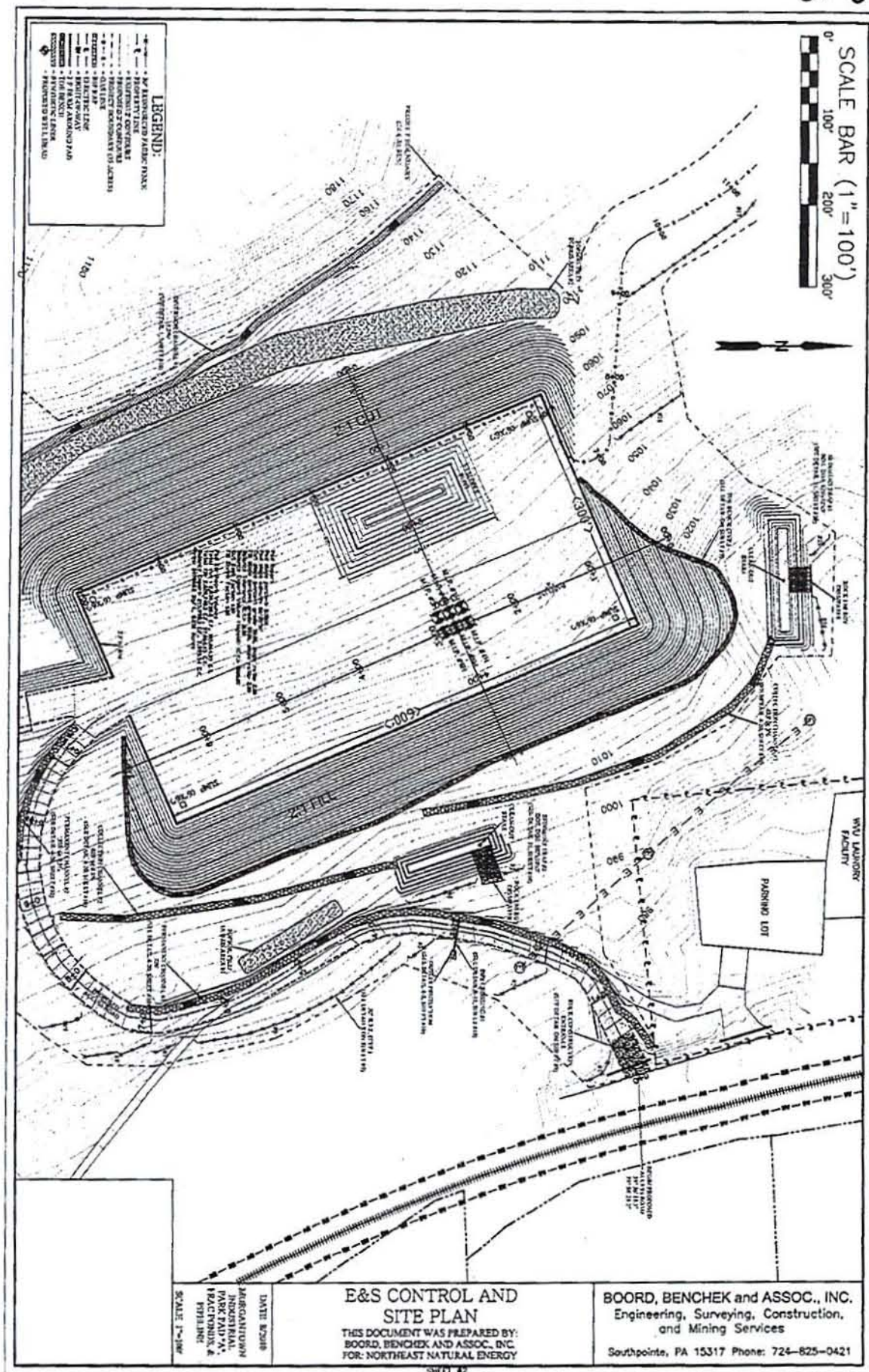
Well Killing Operations

As previously mentioned, these wells will be drilled in on drilling fluid in an overbalanced manner. Should a kick be detected, the well will be killed by the IADC approved "Weight and Wait" method. Bottomhole pressure will be calculated from SIDPP obtained "post-kick", and the drilling fluid density will be increased by adding Barite (weighting material) to the system and circulated throughout the wellbore. The well will then be checked for flow; and if none is detected then drilling operations will resume.

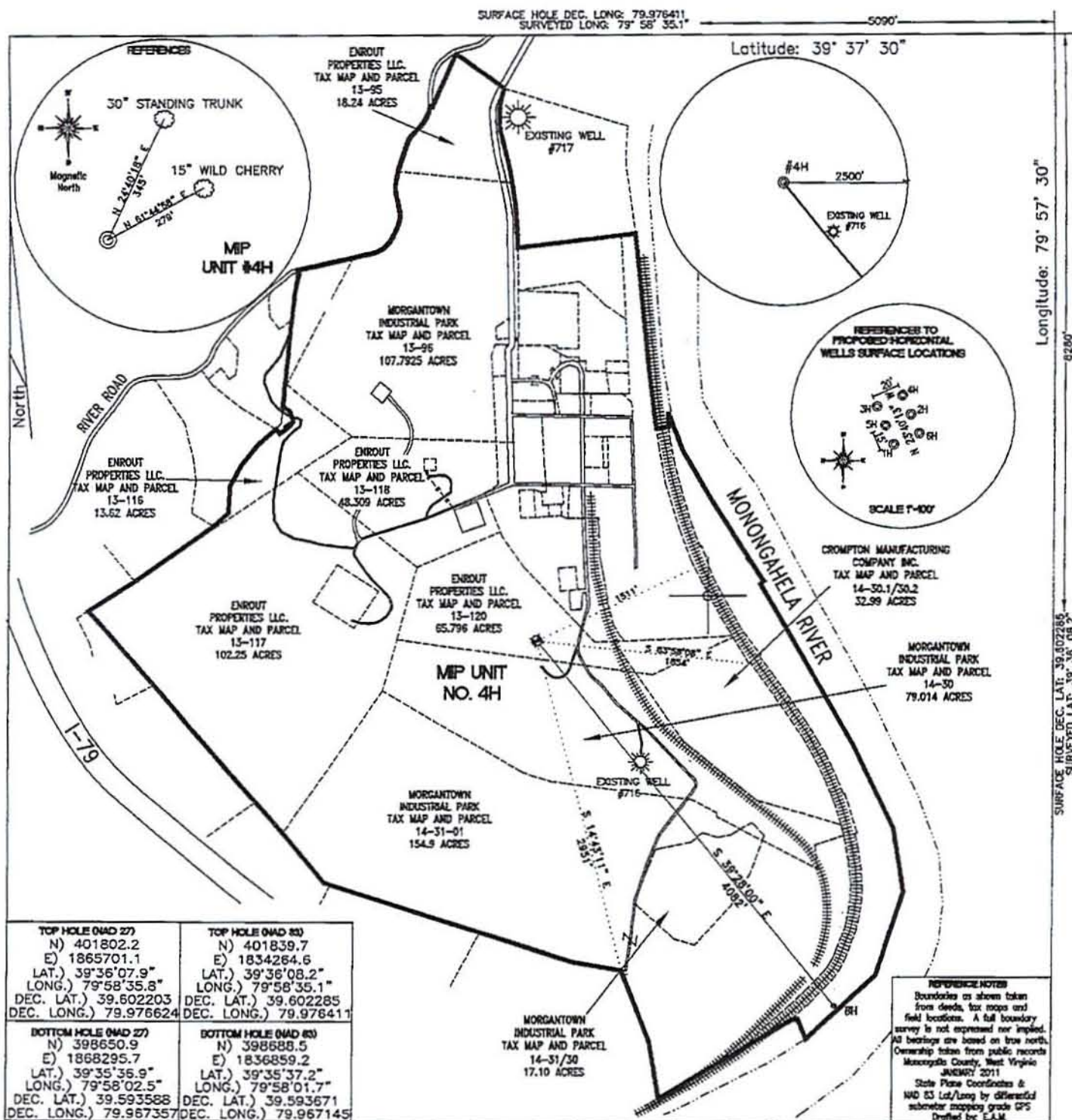
H2S Operations

Mudloggers will be utilized during drilling operations after the intermediate string of casing has been set. If H2S is detected by the mudlogger, an alarm will be issued to notify personnel on location of the presence of H2S. Personnel shall evacuate to the designated area. The designated area shall be determined at each tour change and will be dependent on current wind and weather conditions. The proper offsite notifications will be made once an accurate head count is confirmed and personnel are located in a safe area. Muster areas will be uphill and upwind of the well cellar per proper H2S protocols. The nearest occurrence of H2S in this area was detected in the late 1960's on a deep well drilled near Uniontown PA on the Chestnut Ridge anticline. The H2S was encountered in the Salina formation, nearly a thousand feet below the Marcellus. No H2S is expected to be encountered in the MIP wells.

61-01622H



[illegible]



FILE #: NNE004
DRAWING #: 1419
SCALE: 1"=1200'
MINIMUM DEGREE OF ACCURACY: 1/200
PROVEN SOURCE SUBMETER MAPPING
OF ELEVATION: GRADE GPS

I, THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

Signed:
L.L.S. #2124 : Ernest J. Benchek III



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS
WVDEP

OFFICE OF OIL & GAS
601 57TH STREET
CHARLESTON, WV 25304

Well Type: ☐ Oil ☐ Waste Disposal ☐ Production ☒ Deep
☒ Gas ☐ Liquid Injection ☐ Storage ☒ Shallow

WATERSHED: DUNKARD

COUNTY/DISTRICT: MONONGALIA/GRANT

QUADRANGLE: MORGANTOWN SOUTH

SURFACE OWNER: ENROUTE PROPERTIES LLC.

ACREAGE: 65.796 +/-

OIL & GAS ROYALTY OWNER: ENROUTE PROPERTIES LLC.

ACREAGE: 794.0 +/-

LEASE NUMBERS:

DRILL ☒ CONVERT ☐ DRILL DEEPER ☐ REDRILL ☐ FRACTURE OR STIMULATE ☒
PLUG OFF FORMATION ☐ PERFORATE NEW FORMATION ☐ PLUG & ABANDON ☐
CLEAN OUT & REPLUG ☐ OTHER CHANGE ☐ (SPECIFY):

TARGET FORMATION: MARCELLUS

ESTIMATED DEPTH: 8,500'

WELL OPERATOR : NORTHEAST NATURAL ENERGY

DESIGNATED AGENT : JOHN ADAMS

ADDRESS: 707 VIRGINIA STREET - SUITE 1400

ADDRESS: 707 VIRGINIA STREET - SUITE 1400

CITY: CHARLESTON STATE: WV ZIP CODE: 25301

CITY: CHARLESTON STATE: WV ZIP CODE: 25301

DATE: FEBRUARY 02, 2011

OPERATOR'S WELL #: MIP UNIT NO. 4H

API WELL #: 47 61 0162244
STATE COUNTY PERMIT

WW-2A Surface Waiver

SURFACE OWNER WAIVER

County Monongalia Operator Northeast Natural Energy
Operator well number MIP #4H

INSTRUCTIONS TO SURFACE OWNERS NAMED ON PAGE WW2-A

The well operator named on page WW2A is applying for a permit from the State to do oil or gas well work. (Note: If the surface tract is owned by more than three persons, then these materials were served on you because your name appeared on the Sheriff's tax ticket on the land or because you actually occupy the surface tract. In either case, you may be the only owner who will actually receive these materials.) See Chapter 22 of the West Virginia Code. Well work permits are valid for 24 months. If you do not own any interest in the surface tract, please forward these materials to the true owner immediately if you know who it is. Also, please notify the well operator and the Chief of Oil and Gas.

NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT
WHERE TO FILE COMMENTS AND OBTAIN ADDITIONAL INFORMATION

Chief, Office of Oil and Gas
Department of Environmental Protection
601 57th St. SE
Charleston, Wv 25304
(304) 926-0450

FEB 10 2011

WV Department of
Environmental Protection

Time Limits and methods for filing comments. The law requires these materials to be served on or before the date the operator files his Application. You have **FIFTEEN (15) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Comments must be in writing. Your comments must include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

The Chief has the power to deny or condition a well work permit based on comments on the following grounds:

- 1) The proposed well work will constitute a hazard to the safety of persons;
- 2) The soil erosion and sediment control plan is not adequate or effective;
- 3) Damage would occur to publicly owned lands or resources;
- 4) The proposed well work fails to protect fresh water sources or supplies;
- 5) The applicant has committed a substantial violation of a previous permit or a substantial violation of one or more of the rules promulgated under Chapter 22, and has failed to abate or seek review of the violation...

If you want a copy of the permit as it is issued or a copy of the order denying the permit, you should request a copy from the Chief.

List of Water Testing Laboratories. The Office maintains a list of water testing laboratories which you can hire to test your water to establish water quality prior to and after drilling. Contact the Chief to obtain a copy.

VOLUNTARY STATEMENT OF NO OBJECTION

I hereby state that I have read the instructions to surface owners and that I have received copies of a Notice and Application for a Well Work Permit on Form WW2-A, and attachments consisting of pages 1 through ___ including a work order on Form WW2-B, a survey plat, and a soil and erosion plan, all for proposed well work on my surface land as described therein.

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

FOR EXECUTION BY A NATURAL PERSON

FOR EXECUTION BY A CORPORATION, ETC.

Signature _____	Date _____	Company Name <u>ENROUTE PROPERTIES, LLC</u>	By <u>Glenn T. Adams</u>	Date <u>2/10/11</u>
Print Name _____		Signature <u>[Signature]</u>	Date <u>2/10/11</u>	

WW - 2B
(Rev. 8/10)

61-01622H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WELL WORK PERMIT APPLICATION

1) Well Operator Northeast Natural Energy, LLC

Operator ID	County	District	Quadrangle
	Monongalia	5	485
	Grant		Morgantown So.

2) Operator's Well Number: MIP 4H

3) Elevation: 1,130'

4) Well Type: (a) Oil or Gas X

(b) If Gas: Production X / Underground Storage
Deep / Shallow

5) Proposed Target Formation(s): Marcellus Shale Proposed Target Depth: 7550'

6) Proposed Total Depth: 8000' TVD Feet Formation at Proposed Total Depth: Oriskany

7) Approximate fresh water strata depths: 300'

8) Approximate salt water depths: 750'

9) Approximate coal seam depths: 200' - 250'

10) Approximate void depths, (coal, karst, other): None

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work in detail Drill and complete a horizontal Marcellus well. Drill vertical section to approximately three hundred feet below the base of the Marcellus for logging purposes, plug back the vertical section to the kick off point and drill the horizontal section to a measured depth of 11,456 feet.

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill-up (Cu. Ft.)
Conductor	20"	J-55	94 #	36'	36'	Grout to surf.
Fresh Water	13.375"	J-55	54.5 #	450'	450' ✓	CTS ✓
Coal						
Intermediate	9.625"	J-55	36#	1550'	1550'	CTS
Production	5.5"	P-110	20#	11,456'	11,456'	3138 cu. ft.
Tubing						
Liners						

Packers: Kind
 Sizes
 Depths Set

RECEIVED
Office of Oil & Gas

FEB 08 2011

WV Department of
Environmental Protection

#400.
CK# 6059

WW-2A Coal Waiver

COAL OPERATOR, OWNER, OR LESSEE WAIVER

County Monongalia

Operator Northeast Natural Energy, LLC

Operator's Well Number MIP #4H

INSTRUCTIONS TO COAL OPERATOR, OWNER, OR LESSEE

To the coal operator, owner, or lessee named on page WW2-A. You are hereby notified that any objection you wish to make or are required to make by WV Code 22-6-15, 16 or 17, must be filed with the Chief of the Office of Oil and Gas within fifteen (15) days after the receipt of this application by the Office. Mail objections to:

Chief, Office of Oil & Gas
Department of Environmental Protection
601 57th St. SE
Charleston, WV 25304
(304) 926-0499 extension 1654

RECEIVED
Office of Oil & Gas

FEB 15 2011

WV Department of
Environmental Protection

WAIVER

The undersigned coal operator _____ / owner ☒ / lessee _____ / of the coal under this well location has examined this proposed well location. If a mine map exists which covers the area of well location, the well location has been added to the mine map. The undersigned has no objection to the work proposed to be done at this location, provided, the well operator has complied with all applicable requirements of the West Virginia Code and the governing regulations.

FOR EXECUTION BY A NATURAL PERSON

Signature _____

Date 2/14/11

FOR EXECUTION BY A CORPORATION, ETC.

Company

Name

By

Its

Morgantown Industrial Park Assoc. L.P.

John B. Guider

Pres. of Morgantown

Industrial / Morgantown Park, Inc.

Signature Gen. P.

Date

2/14/11

John B. Guider